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EXAMINER	
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ART UNIT	**PAPER NUMBER**
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SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/01/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/767,401	MOSTERT ET AL.	
	Examiner	Art Unit	
	David S. Kim	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 January 2004 and 06 June 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-66* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-66* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 January 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the following limitations must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

In claim 64, "The apparatus of claim 54, wherein an input port of the downstream combiner is coupled to an output port of the another downstream combiner" is not shown.

In claim 65, "The apparatus of claim 54, wherein an output port of the downstream combiner is coupled to an input port of the another downstream combiner" is not shown.

2. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

3. **Claims 6, 62, and 66** are objected to because of the following informalities:

In claim 6, "the another optical signal conductor", "the second upstream combiner", and "the another downstream combiner" are lacking antecedent basis.

In claim 62, "drop device" is used where -- add device -- may be intended. Otherwise, antecedent basis is lacking.

In claim 66, "the apparatus of claim 39" is used but lacks antecedent basis. Claim 39 does not disclose an apparatus.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. **Claims 1-5, 7, 9-10, 45-47, and 50-53** are rejected under 35 U.S.C. 102(b) as being anticipated by Atlas (U.S. Patent No. 6,097,533).

Regarding claim 1, Atlas discloses:

A method, comprising:

propagating a downstream signal (FORWARD in Fig. 4) on an optical signal conductor (74, 76) from an upstream combiner (68) to a downstream combiner (72); and

propagating an upstream signal (REVERSE) on the optical signal conductor (74, 76) from the downstream combiner (72) to the upstream combiner (68).

Regarding claim 2, Atlas discloses:

The method of claim 1, further comprising conveying the downstream signal from an input port of the upstream combiner (port for 80 in Fig. 7) to a bi-directional common port (e.g., right side port of 112, port for 85) of the upstream combiner and conveying the downstream signal from a bi-directional common port of the downstream combiner (e.g., port for 87, left side port of 110 in Fig. 8) to an output port of the downstream combiner (port for 82).

Regarding claim 3, Atlas discloses:

The method of claim 1, further comprising conveying the upstream signal from an input port of the downstream combiner (port for 84 in Fig. 8) to a bidirectional common port (e.g., port for 87, left side port of 110) of the downstream combiner and conveying the upstream signal from a bi-directional

common port of the upstream combiner (e.g., right side port of 112, port for 85) to an output port of the upstream combiner (port for 86).

Regarding claim 4, Atlas discloses:

The method of claim 1, wherein the downstream signal includes an analog signal ("analog" in col. 5, l. 46).

Regarding claim 5, Atlas discloses:

The method of claim 1, wherein the downstream signal includes a digital signal ("digital" in col. 5, l. 46).

Regarding claim 7, Atlas discloses:

The method of claim 1, further comprising multiplexing the downstream signal ("multiplex" in col. 5, l. 40-41) before propagating the downstream signal on the optical signal conductor from the upstream combiner to the downstream combiner.

Regarding claim 9, Atlas discloses:

The method of claim 1, wherein the upstream signal includes a digital signal (col. 5, l. 59-63).

Regarding claim 10, Atlas discloses:

The method of claim 1, further comprising adding data (implied by the "multiplex" in col. 5, l. 57-59) from a customer premises to the upstream signal before propagating the upstream signal on the optical signal conductor from the downstream combiner to the upstream combiner.

Regarding claim 45, Atlas discloses:

An apparatus, comprising:

an upstream combiner including an upstream bidirectional common port (110 in Fig. 8);

an optical signal conductor (74, 76 in Fig. 4) coupled to the upstream bi-directional common port (left side port of 110 in Fig. 8) of the upstream combiner; and

a downstream combiner including a downstream bi-directional common port (112 in Fig. 7) coupled to the optical signal conductor.

Regarding claim 46, Atlas discloses:

The apparatus of claim 45, further comprising an upstream input optical isolator (e.g., 122 in an upstream version of Fig. 16) coupled to an upstream input port of the upstream combiner and an upstream output optical isolator (e.g., 120 in an upstream version of Fig. 16) coupled to an upstream output port of the upstream combiner.

Regarding claim 47, Atlas discloses:

The apparatus of claim 45, further comprising a downstream input optical isolator (e.g., 122 in a downstream version of Fig. 16) coupled to a downstream input port of the downstream combiner and a downstream output optical isolator (e.g., 120 in an upstream version of Fig. 16) coupled to a downstream output port of the downstream combiner.

Regarding claim 50, Atlas discloses:

The apparatus of claim 45, further comprising an add device (implied by the "multiplex" in col. 5, l. 57-59) coupled to a downstream input port of the downstream combiner.

Regarding claim 51, Atlas discloses:

The apparatus of claim 50, further comprising an optical isolator (e.g., 122 in a downstream version of Fig. 16) coupled to the add device.

Regarding claim 52, Atlas discloses:

The apparatus of claim 45, further comprising a drop device (e.g., signals to node 14 in Fig. 4 drop to customers at 34 in Fig. 1B) coupled to a downstream output port of the downstream combiner.

Regarding claim 53, Atlas discloses:

The apparatus of claim 52, further comprising an optical isolator (e.g., 120 in a downstream version of Fig. 16) coupled to the drop device.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. **Claims 6, 12-16, 18-40, 42-43, and 54-66** are rejected under 35 U.S.C. 103(a) as being unpatentable over Atlas in view of Takada (U.S. Patent No. 5,949,563).

Regarding claim 6, Atlas discloses:

The method of claim 1, further comprising dropping data to a customer premises from the downstream signal (e.g., signals to node 14 in Fig. 4 drop to customers at 34 in Fig. 1B).

Atlas does not expressly disclose:

The method of claim 1, further comprising dropping data to a customer premises from the downstream signal *after propagating the downstream signal on the **another** optical signal conductor from the **second** upstream combiner to the **another** downstream combiner.*

However, the use of additional components, such as another optical signal conductor, a second upstream combiner, and another downstream combiner, is a common technique in the art. For example, consider the use of additional components in Takada (e.g., standby systems in Figs. 3-4). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to include additional components, such as another optical signal combiner, a second upstream combiner, and another downstream combiner. One of ordinary skill in the art would have been motivated to do this to provide system redundancy (Takada, col. 1, l. 13-14), which provides high reliability (Takada, col. 1, l. 35).

Regarding claim 12, Atlas does not expressly disclose:

The method of claim 1, further comprising:

propagating ***another*** downstream signal on ***another*** optical signal conductor from ***another*** upstream combiner to ***another*** downstream combiner; and

propagating ***another*** upstream signal on the ***another*** optical signal conductor from the ***another*** downstream combiner to the ***another*** upstream combiner.

However, the use of additional components is a common technique in the art. For example, consider the use of additional components in Takada (e.g., standby systems in Figs. 3-4). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to include additional components, such as the "another" components of the claim limitations above. One of ordinary skill in the art would have been motivated to do this to provide system redundancy (Takada, col. 1, l. 13-14), which provides high reliability (Takada, col. 1, l. 35).

Regarding claim 13, Atlas in view of Takada:

The method of claim 12, further comprising conveying the another upstream signal from an input port of the another downstream combiner to a bi-directional common port of the another downstream combiner and conveying the another upstream signal from a bidirectional common port of the another upstream combiner to an output port of the another upstream combiner (These limitations correspond to the limitations introduced by claim 3. See the treatment of claim 3 above. The "another" limitations are addressed by Takada.).

Regarding claim 14, Atlas in view of Takada:

The method of claim 12, further comprising conveying the another downstream signal from an input port of the another upstream combiner to a bi-directional common port of the another upstream combiner and conveying the another downstream signal from a bidirectional common port of the another downstream combiner to an output port of the another downstream combiner (These limitations correspond to the limitations introduced by claim 2. See the treatment of claim 2 above. The "another" limitations are addressed by Takada.).

Regarding claim 15, Atlas in view of Takada:

The method of claim 12, wherein the downstream signal includes an analog video (Atlas, col. 4, l. 48) broadcast signal (Atlas, e.g., col. 6, l. 51-53).

Regarding claim 16, Atlas in view of Takada:

The method of claim 12, wherein the downstream signal includes a digital signal (Atlas, "digital" in col. 5, l. 46).

Regarding claim 18, Atlas in view of Takada:

The method of claim 12, wherein the upstream signal includes a digital signal (Atlas, col. 5, l. 59-63).

Regarding claim 19-23, Atlas in view of Takada does not expressly disclose:

(claim 19) The method of claim 18, wherein the digital signal includes a packet switched signal.

(claim 20) The method of claim 19, wherein the packet switched signal includes a cell-switched signal.

(claim 21) The method of claim 20, wherein the cell-switched signal includes an asynchronous transfer mode digital data signal.

(claim 22) The method of claim 19, wherein the packet switched signal includes a frame switched signal.

(claim 23) The method of claim 22, wherein the cell-switched signal includes a synchronous transfer mode digital data signal.

However, all of these types of signals are common and well-known types of communication signals. Implementing the method of Atlas in view of Takada with any or all of these types of communication signals simply present obvious variations of the basic method of Atlas in view of Takada.

Regarding claim 24, Atlas in view of Takada does not expressly disclose:

The method of claim 19, further comprising ***wavelength demultiplexing*** the upstream signal after propagating the upstream signal on the optical signal conductor from the downstream combiner to the upstream combiner.

However, Atlas does disclose a wavelength multiplexed upstream signal (wavelength multiplexed upstream signal to headend 12 in Fig. 1B), and demultiplexing a wavelength multiplexed signal is standard practice in the art. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to wavelength demultiplex the wavelength multiplexed upstream signal. One of

ordinary skill in the art would have been motivated to do this to access at least one of the wavelength multiplexed channels in the wavelength multiplexed upstream signal. Otherwise, one would not generally be able to access any of the wavelength multiplexed channels in the wavelength multiplexed upstream signal.

Regarding claim 25, Atlas in view of Takada:

The method of claim 19, further comprising adding data (implied by the "multiplex" in col. 5, l. 57-59) from a customer premises to the upstream signal before propagating the upstream signal on the optical signal conductor from the downstream combiner to the upstream combiner.

Regarding claim 26, Atlas in view of Takada:

The method of claim 12, wherein the another downstream signal includes an analog signal ("analog" in col. 5, l. 46).

Regarding claim 27, Atlas in view of Takada:

The method of claim 12, wherein the another downstream signal includes a digital signal ("digital" in col. 5, l. 46).

Regarding claims 28-32, Atlas in view of Takada does not expressly disclose:

(claim 28) The method of claim 27, wherein the digital signal includes a packet switched signal.

(claim 29) The method of claim 28, wherein the packet switched signal includes a cell-switched signal.

(claim 30) The method of claim 29, wherein the cell-switched signal includes an asynchronous transfer mode digital data signal.

(claim 31) The method of claim 28, wherein the packet switched signal includes a frame switched signal.

(claim 32) The method of claim 31, wherein the cell-switched signal includes a synchronous transfer mode digital data signal.

However, all of these types of signals are common and well-known types of communication signals. Implementing the method of Atlas in view of Takada with any or all of these types of communication signals simply present obvious variations of the basic method of Atlas in view of Takada.

Regarding claim 33, Atlas in view of Takada:

The method of claim 28, further comprising wavelength multiplexing (wavelength multiplexed downstream signal(s) in Fig. 1B) the another downstream signal before propagating the another downstream signal on the another optical signal conductor from the another upstream combiner to the another downstream combiner.

Regarding claim 34, Atlas in view of Takada:

The method of claim 28, further comprising dropping data to a customer premises (e.g., signals to node 14 in Fig. 4 drop to customers at 34 in Fig. 1B) from the another downstream signal after propagating the another downstream signal on the another optical signal conductor from the second upstream combiner to the another downstream combiner.

Regarding claim 35, Atlas in view of Takada:

The method of claim 12, wherein the another upstream signal includes a digital signal (Atlas, col. 5, l. 59-63).

Regarding claims 36-40, Atlas in view of Takada:

(claim 36) The method of claim 35, wherein the digital signal includes a packet switched signal.

(claim 37) The method of claim 36, wherein the packet switched signal includes a cell-switched signal.

(claim 38) The method of claim 37, wherein the cell-switched signal includes an asynchronous transfer mode digital data signal.

(claim 39) The method of claim 36, wherein the packet switched signal includes a frame switched signal.

(claim 40) The method of claim 39, wherein the cell-switched signal includes a synchronous transfer mode digital data signal.

However, all of these types of signals are common and well-known types of communication signals. Implementing the method of Atlas in view of Takada with any or all of these types of communication signals simply present obvious variations of the basic method of Atlas in view of Takada.

Regarding claim 42, Atlas in view of Takada:

The method of claim 12, further comprising broadcasting (Atlas, e.g., col. 6, l. 51-53) at least a portion of the downstream signal to a plurality of users (e.g., plurality of nodes in Fig. 1B) and conveying a signal from at least one of the plurality of users to an input port of the another downstream combiner (e.g., 68 or 72 of Fig. 4 at one of the nodes) as the another upstream signal.

Regarding claim 43, Atlas in view of Takada:

The method of claim 12, further comprising distributing at least a portion of the another (redundant teachings of Takada applied above) downstream signal to a plurality of users and conveying a signal from at least one of the plurality of users to an input port of the downstream combiner as the upstream signal.

Regarding claim 54, Atlas does not expressly disclose:

The apparatus of claim 45, further comprising:

another upstream combiner including ***another*** upstream bi-directional common port;

another optical signal conductor coupled to the ***another*** upstream bidirectional common port of the ***another*** upstream combiner; and

another downstream combiner including ***another*** downstream bidirectional common port coupled to the ***another*** optical signal conductor.

However, the use of additional components is a common technique in the art. For example, consider the use of additional components in Takada (e.g., standby systems in Figs. 3-4). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to include additional components, such as the "another" components of the claim limitations above. One of ordinary skill in the art would have been motivated to do this to provide system redundancy (Takada, col. 1, l. 13-14), which provides high reliability (Takada, col. 1, l. 35).

Regarding claim 55, Atlas in view of Takada discloses:

The apparatus of claim 54, further comprising an upstream input optical isolator (e.g., 122 in an upstream version of Fig. 16) coupled to an upstream input port of the another upstream combiner and an upstream output optical isolator (e.g., 120 in an upstream version of Fig. 16) coupled to an upstream output port of the another upstream combiner (the "another" limitations are addressed by Takada).

Regarding claim 56, Atlas in view of Takada discloses:

The apparatus of claim 54, further comprising a downstream input optical isolator (e.g., 122 in a downstream version of Fig. 16) coupled to a downstream input port of the another downstream combiner and a downstream output optical isolator (e.g., 120 in an upstream version of Fig. 16) coupled to a downstream output port of the another downstream combiner (the "another" limitations are addressed by Takada).

Regarding claim 57, Atlas in view of Takada does not expressly disclose:

The apparatus of claim 54, further comprising a ***wavelength division multiplexer*** coupled to an upstream input port of the another upstream combiner.

However, Atlas does disclose the addition of signals by a multiplexer (col. 12, l. 35-43). It is generally known that wavelength division multiplexing by a wavelength division multiplexer is a standard way to add signals by a multiplexer. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to implement a wavelength division multiplexer coupled to an upstream input port of the another upstream combiner of Atlas in view of Takada. One of ordinary skill in the art would have been motivated to do this for any common motivation for adding a signal (col. 12, l. 35-43), such as to increase the amount of carried capacity in the system of Atlas in view of Takada.

Regarding claim 58, Atlas in view of Takada does not expressly disclose:

The apparatus of claim 54, further comprising a ***wavelength division demultiplexer*** coupled to an upstream output port of the another upstream combiner.

However, Atlas does disclose a wavelength multiplexed upstream signal (wavelength multiplexed upstream signal to headend 12 in Fig. 1B), and demultiplexing a wavelength multiplexed signal by a wavelength division demultiplexer is standard practice in the art. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to wavelength demultiplex the wavelength multiplexed upstream signal by a wavelength division demultiplexer. One of ordinary skill in the art would have been motivated to do this to access at least one of the wavelength multiplexed channels in the wavelength multiplexed upstream signal. Otherwise, one would not generally be able to access any of the wavelength multiplexed channels in the wavelength multiplexed upstream signal.

Regarding claim 59, Atlas in view of Takada discloses:

The apparatus of claim 54, further comprising a drop device (e.g., signals to node 14 in Fig. 4 drop to customers at 34 in Fig. 1B) coupled to a downstream output port of the downstream combiner.

Regarding claim 60, Atlas in view of Takada discloses:

The apparatus of claim 59, further comprising an optical isolator (e.g., 120 in a downstream version of Fig. 16) coupled to the drop device.

Regarding claim 61, Atlas in view of Takada discloses:

The apparatus of claim 54, further comprising an add device (implied by the "multiplex" in col. 5, l. 57-59) coupled to a downstream input port of the another downstream combiner.

Regarding claim 62, Atlas in view of Takada discloses:

The apparatus of claim 61, further comprising an optical isolator (e.g., 122 in a downstream version of Fig. 16) coupled to the drop device.

Regarding claim 63, Atlas in view of Takada discloses:

The apparatus of claim 54, further comprising:

a drop device coupled to a downstream output port of the downstream combiner (e.g., signals to node 14 in Fig. 4 drop to customers at 34 in Fig. 1B);

a customer premises equipment digital receiver input (e.g., receiver at 36) coupled to the drop device;

an add device (e.g., any device that adds signals from the plurality of units 34) coupled to a downstream input port of the another downstream combiner (the "another" limitations are addressed by Takada); and

a customer premises equipment digital receiver output (e.g., reverse channel transmission output at 36 to headend 12) coupled to the add device.

Atlas in view of Takada does not expressly disclose:

the customer premises equipment digital receiver input including an input ***optical*** connector;

the customer premises equipment digital receiver output including an output ***optical*** connector,

wherein the input optical connector and the output optical connector define ***physically different, non-interchangeable form factors.***

Rather, the customer premises equipment digital receivers of Atlas in view of Takada appear to have *electrical* connectors for the electrical coaxial lines of 22 and 32. However, optical fiber lines that reach to customer premises are known in the art. Such lines have input and output *optical* connectors at the customer premises equipment digital receivers. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to employ such optical fibers lines and optical connectors. One of ordinary skill in the art would have been motivated to do this since optical fiber lines provide well-known advantages over electrical coaxial lines, such as higher bandwidth and low loss.

Additionally, input and output connectors with physically different, non-interchangeable form factors are also well known in the art. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to include such connectors in the system of Atlas in view of Takada. One of ordinary skill in the art would have been motivated to do this since they are known to provide the benefit of preventing the misconnection of an input to an output connector and the misconnection of an output to an input connector.

Regarding claim 64, Atlas in view of Takada discloses:

The apparatus of claim 54, wherein an input port of the downstream combiner is coupled to an output port of the another downstream combiner (e.g., Takada, coupling of two downstream combiners through selection components 81 and 82 in Figs. 3-4; Atlas in view of Takada, customer premises equipment would connect redundant downstream combiners).

Regarding claim 65, Atlas in view of Takada discloses:

The apparatus of claim 54, wherein an output port of the downstream combiner is coupled to an input port of the another downstream combiner (e.g., Takada, coupling of two downstream combiners through selection components 81 and 82 in Figs. 3-4; Atlas in view of Takada, customer premises equipment would connect redundant downstream combiners).

Regarding claim 66, Atlas in view of Takada discloses:

A cable access television network (Atlas, CATV in col. 1, l. 8), comprising the apparatus of claim 39.

9. **Claim 8** is rejected under 35 U.S.C. 103(a) as being unpatentable over Atlas in view of Hsu (U.S. Patent No. 5,317,440).

Regarding claim 8, Atlas does not expressly disclose:

The method of claim 1, wherein the ***upstream*** signal includes an ***analog*** signal.

However, analog signals are extremely well known in the art. For example, Hsu teaches an upstream analog signal (Hsu, col. 5, l. 43-44). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to include arrange the upstream signal of Atlas to include an analog signal. One of ordinary skill in the art would have been motivated to do this since Atlas teaches digital upstream signals (Atlas, col. 5, l. 59-63), and Hsu shows that analog upstream signals are a suitable alternative to digital upstream signals (Hsu, col. 5, l. 43-44).

10. **Claims 17, 41, and 44** are rejected under 35 U.S.C. 103(a) as being unpatentable over Atlas in view of Takada as applied to the claims above, and further in view of Hsu.

Regarding claims 17 and 41, claims 17 and 41 introduce limitations that correspond to the limitations introduced by claim 8. Hsu is applied to address the limitations introduced by claim 8. Similarly, Hsu is applied here to address the corresponding limitations introduced by claims 17 and 41.

Regarding claim 44, Atlas in view of Takada:

A process of operating a cable access television network (Atlas, CATV in col. 1, l. 8) comprising the method of claim 41.

11. **Claims 11 and 48-49** are rejected under 35 U.S.C. 103(a) as being unpatentable over Atlas.

Regarding claim 11, Atlas does not expressly disclose:

The method of claim 1, further comprising ***demultiplexing*** the upstream signal after propagating the upstream signal on the optical signal conductor from the downstream combiner to the upstream combiner.

However, Atlas does disclose a multiplexed upstream signal (col. 5, l. 57-59), and demultiplexing a multiplexed signal is standard practice in the art. At the time the invention was made, it would have

been obvious to one of ordinary skill in the art to demultiplex the multiplexed upstream signal. One of ordinary skill in the art would have been motivated to do this to access at least one of the multiplexed channels in the multiplexed upstream signal. Otherwise, one would not generally be able to access any of the multiplexed channels in the multiplexed upstream signal.

Regarding claim 48, Atlas does not expressly disclose:

The apparatus of claim 45, further comprising a ***wavelength division demultiplexer*** coupled to an upstream output port of the first upstream combiner.

However, Atlas does disclose a wavelength multiplexed upstream signal (wavelength multiplexed upstream signal to headend 12 in Fig. 1B), and demultiplexing a wavelength multiplexed signal by a wavelength division demultiplexer is standard practice in the art. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to wavelength demultiplex the wavelength multiplexed upstream signal by a wavelength division demultiplexer. One of ordinary skill in the art would have been motivated to do this to access at least one of the wavelength multiplexed channels in the wavelength multiplexed upstream signal. Otherwise, one would not generally be able to access any of the wavelength multiplexed channels in the wavelength multiplexed upstream signal.

Regarding claim 49, Atlas does not expressly disclose:

The apparatus of claim 45, further comprising a ***wavelength division multiplexer*** coupled to an upstream input port of the upstream combiner.

However, Atlas does disclose the addition of signals by a multiplexer (col. 12, l. 35-43). It is generally known that wavelength division multiplexing by a wavelength division multiplexer is a standard way to add signals by a multiplexer. At the time the invention was made, it would have been obvious to one of ordinary skill in the art to implement a wavelength division multiplexer coupled to an upstream input port of the upstream combiner of Atlas. One of ordinary skill in the art would have been motivated to do this for any common motivation for adding a signal (col. 12, l. 35-43), such as to increase the amount of carried capacity in the system of Atlas.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Fussganger et al. (U.S. Patent No. 4,957,339), Hsu (U.S. Patent No. 5,005,936), Hsu et al. (U.S. Patent No. 5,283,687), Giles (U.S. Patent No. 5,633,741), and Wojtunik (U.S. Patent No. 6,211,978 B1) are cited to show downstream and upstream signals through upstream and downstream combiners and an optical signal conductor. Wood (U.S. Patent No. 7,088,921 B1) is cited to show Ethernet over a CATV network.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Kim whose telephone number is 571-272-3033. The examiner can normally be reached on Mon.-Fri. 9 AM to 5 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth N. Vanderpuye can be reached on 571-272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DSK

KENNETH VANDERPUYE
SUPERVISORY PATENT EXAMINER